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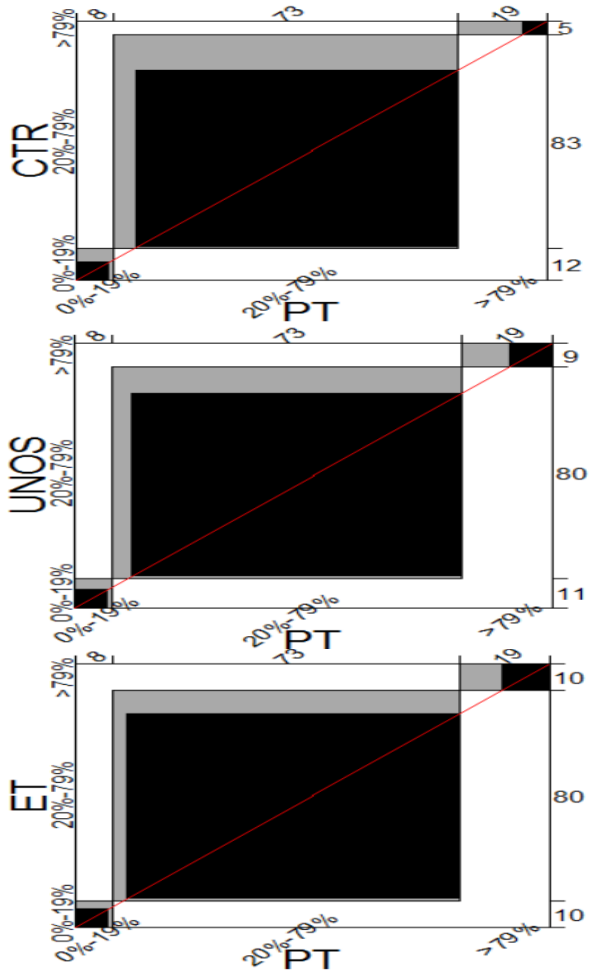
Estimate Cohen's kappa statistics and test for the null hypoth esis that the extent of agreement is same as random (kappa= 0) between PT cPRA values and each one of the calculators

Calculator	kappa	95% CI	p-value
CTR	0.47	0.26-0.68	<0.001
UNOS	0.62	0.44-0.79	<0.001
ET	0.67	0.50-0.84	<0.001

PT Portuguese
CTR Canadian Transplant Registry
UNOS United Network for Organ Sharing
ET Eurotransplant
CI Confidence Interval



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ASSESSMENT OF A PORTUGUESE PANEL REACTIVE ANTIBODY CALCULATOR

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Calculated panel-reactive antibody (cPRA) is an accurate measure for the definition of candidates' immunization to a transplant. Based upon unacceptable HLA antigens to which the patient has been sensitized, cPRA is computed with HLA allelic and haplotypic frequencies from a pool of possible donors and represents the percentage of donors that express one or more of the antigens unacceptable for a given transplant candidate. The aim of this study is to compare cPRA values obtained from HLA frequencies of Portuguese donors with values obtained from cPRA calculators from international established sources. We randomly generate HLA-A, -B and -DRB1 unacceptable antigens to a simu- lated cohort of 100 transplant candidates. With the respective antigens for each patient we compute the Portu- guese (PT) cPRA values using the formula developed by Zachary and Braun based on HLA allelic and haplotypic frequencies of 37,993 unrelated bone marrow donors. The results obtained were compared with cPRA values defined from Canadian Transplant Registry (CTR), United Network for Organ Sharing (UNOS) and Eurotransplant (ET) calcula- tors. For each calculator we also classified cPRA between 0-19% as low sensitized, between 20-79% as sensitized and >79% as highly sensitized. Spearmans rho test was used to compare results from each calculator and to assess the correlation between them; Cohen's kappa coefficient was used to access agreement for categorical values. Values obtained for cPRA from PT calculator are highly correlated with cPRA obtained from each one of the three calculators. When we categorized cPRA values from each calculator, substantial agreement was obtained between PT and ET (kappa = 0.67) and between PT and UNOS (kappa = 0.62) while only a moderate agreement was obtained between PT and CTR values (kappa = 0.47).

The cPRA gives us the probability of each transplant candidate to have a positive crossmatch with the next available donor for transplantation. Reliability of cPRA values depends on the donor pool from which it is calculated, and it is crucial for highly sensitized patients to be classified as so. The genotypic frequencies used for cPRA computation frequencies should be known and scrutinized to assure a correct measure of candidates' sensitization and must correspond, as far as possible, to those from future organ donors.

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